



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/671,189	09/24/2003	Vipul Srivastava	16869G-088700US	6394
20350 7590 04/05/2007 TOWNSEND AND TOWNSEND AND CREW, LLP TWO EMBARCADERO CENTER EIGHTH FLOOR SAN FRANCISCO, CA 94111-3834			EXAMINER ALPHONSE, FRITZ	
			ART UNIT 2112	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		04/05/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/671,189

Applicant(s)

SRIVASTAVA, VIPUL

Examiner

Fritz Alphonse

Art Unit

2133

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.


- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 13-21 is/are rejected.
- 7) ☒ Claim(s) 12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.


GUY LAMARRE
PRIMARY EXAMINER

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

0.1 This Office Action is in response to the amendment filed on 6/15/2006. Claims 1-21 are pending.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 7 recites the limitation "The hard disk drive read channel chipset as defined in claim 6..." in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-11, 13-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murai (U.S. Pat. No. 4,866,717) in view of Frederickson (U.S. Pat. No. 5,805,799) and further in view of Tamai (U.S. Pat. No. 6,799,283).

As to claim 1, Murai (figs. 1-2) shows a data storage system including a controller that generates a sector of data from an old logical block address to a new logical block address when a portion of a data storage medium corresponding to the old LBA contains a defect (col. 3, lines 36-58) and a cycle redundancy check engine that generates old cyclic redundancy check bytes based on the old LBA (col. 6, lines 35-54).

Murai does not explicitly disclose a controller that reassigns a sector of data from an old logical block address (LBA) to a new logical block address. However, the limitation is obvious and well known in the art, as evidenced by Tamai (figs. 13, 14; col. 17, lines 7-18).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to combine Murai's code error detecting apparatus with the disk array device, as disclosed by Tamai. Doing so would provide a disk array device capable of reading data from a disk array to transmit the same to a host device and writing data from the host device in the disk array in a short period of time.

In addition, as to 1, Murai does not explicitly disclose a CRC that performs a exclusive OR (XOR) function on the LBA and a Galois Field multiplication on a result of the first XOR function, and performs a second XOR function on a result of the Galois Field multiplication and the old cyclic redundancy check bytes to generate updated cyclic redundancy check bytes that are based on the new LBA.

However, in the same field of endeavor, Frederickson (fig. 4) discloses data integrity code including logical block address including a CRC that performs Galois Field multiplication on a result of the first XOR function, and performs XOR function on a result of the Galois Field multiplication (col. 2, lines 37-47; col. 10, lines 60 through col. 11 line 38).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to combine Murai's code error detecting apparatus with the data integrity device, as disclosed by Frederickson. Doing so would reduce the miscorrection probability of an error correction process carried out in accordance with an ECC (col. 2, lines 10-13).

As to claims 2-4, Murai (fig. 1) discloses a data storage system comprising a memory buffer (fig. 1A, 107), wherein the CRC engine (101) writes the updated cyclic redundancy check bytes to the memory buffer (106), and wherein the sector of data and the LBA contain bytes (col. 6, lines 25-54).

As to claim 5-7, 13-14, Murai (fig. 1) discloses a data storage system, a controller is configured to store data onto a magnetic hard disk (col. 8, lines 39-53).

As to claim 8, method claim 8 corresponds to apparatus claim 1; therefore, it is analyzed as previously discussed in claim 1 above.

As to claims 9-11, method claims 9-11 correspond to apparatus claims 2 and 4; therefore, they are analyzed as previously discussed in claims 2 and 4 above.

As to claim 15, Murai (fig. 1) discloses a disk drive error correction system (col. 8, lines 39-53) including a cycle redundancy check engine that generates old cyclic redundancy check bytes based on a first logic block address (LBA) for a sector of data (col. 6, lines 25-54).

Murai does not explicitly disclose XOR gates that performs a first exclusive OR (XOR) function on the old LBA and the new LBA; circuitry for performing Galois Field multiplication on a result of the first XOR function LBA.

However, these limitations are obvious and very well known in the art, as evidenced by Frederickson (fig. 4). See the motivation for the same reason disclosed in claim 1 above.

In addition, as to claim 15, the use of XOR gates performing exclusive OR (XOR) function on LBA circuitry is clearly disclosed by Biskup (U.S. Pat. No. 6,751,757). See figure 7A and column 11, lines 14-32.

As to claims 16-17, Murai (fig. 1) discloses a disk drive error correction system comprising: a memory buffer, wherein the sector of data is stored on a magnetic hard disk (col. 8, lines 39-53).

As to claims 18-19, the claims have substantially the limitations of claim 15; therefore, they are analyzed as previously discussed in claim 15 above.

As to claims 20 and 21, the claims have substantially the limitations of claim 1 therefore, they are analyzed as previously discussed in claim 15 above.

Allowable Subject Matter

5. Claim 12 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks, Washington, D.C. 20231

or faxed to: (703) 872-9306 for all formal communications.

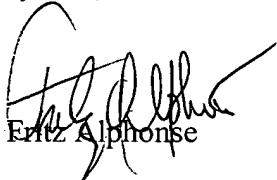
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fritz Alphonse, whose telephone number is (571) 272-3813. The examiner can normally be reached on M-F, 8:30-6:00, Alt. Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert De Cady, can be reached at (571) 272-3819.

Art Unit: 2133

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-3824.

Information regarding the status of an application may also be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Fritz Alphonse

Art Unit 2133

March 28, 2007



GUY LAMARRE
PRIMARY EXAMINER